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Maintenance, Logistics and Facilities
Facilities Management NWSPD 30-41

FACILITIES CONSTRUCTION

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This Instruction implements Construction areas contained in National Weather Service (NWS) Policy 30-41, *Facilities Management*, dated September 9, 2002.

SUMMARY OF REVISIONS: This instruction supercedes WSOM Chapter H-11, “Facilities Planning and Programming,” dated May 26, 1972 along with OML 12-83, dated July 19, 1983, filed with H-11.

Signed by	12/18/2002
John McNulty, Jr.	Date
Director, Office of Operational Systems	

Facilities Construction

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1. Introduction. This instruction implements NWSPD 30-41, Facilities Management. The National Weather Service (NWS) completed construction of Weather Forecast Offices over several years beginning in the early 1980s. The experience gained from the process of new design, construction, modification or built to suit and lease back is summarized in this instruction. These processes include construction services procurement, construction administration services, and move-in.

2. Purpose. The purpose of this document is to provide construction instruction to implement NWS PD 30-41. In addition, guidance provided in NOAA Administrative Order (NAO) 217-104, *Project Development, Approval, and Management (PDAM) Process* illustrates the activities in the construction phase.

3. Scope. This document covers the construction phase in the PDAM project. Planning, programming and design are covered in separate instructions. This instruction provides guidance for NWS Headquarters (WSH), Regional Headquarters, National Centers, and field offices. Details of construction topics are detailed in paragraphs 4 and 5.

4. Construction Services Procurement. Construction documents must be complete, coordinated between disciplines, biddable, readable, and buildable, with no room for unreasonable subjective interpretation. Code criteria should be reviewed by each discipline to the degree of detail necessary to ensure that tasks accomplished meet code requirements.

4.1 Administrative Support Center (ASC). Support is provided by the ASCs in design and construction services, procurement, processing requests for information, and modifications. The ASC supports contracting strategies for construction services procurement that use Architect and Engineering (A/E) developed design documents, coupled with an Invitation for Bid advertised in the Federal Business Opportunity, the single government point-of-entry for Federal government procurement opportunities over \$25,000.

4.2 Procurement Strategy/Project Delivery Methods. During the programming phase of the project, the project manager should plan to adopt the right procurement strategy in consultation with the customer and the ASC in charge of procurement of construction services. Generally speaking, there are two approaches to procurement.

4.2.1 Invitation For Bid. This is also known as low bid. This is the fastest procurement process and the least expensive in terms of resources required. Such an approach requires construction documents (drawings and specifications) that are complete and well coordinated.

4.2.2 Request For Proposal. This approach is more involved and requires more effort and time for both the bidder (future contractor) and the Government. The bidder submits two documents. One is the technical proposal outlining technical qualifications and experience. The other is a financial proposal outlining cost breakdown, overhead, profit, etc. The Government forms a source selection board to establish selection criteria, review both proposals, score them and select the best. Technical scores are reconciled against the financial scores and the “best value” proposal is selected. This process is appropriate for special or unique projects that require unique experience, attention to detail, and quality of workmanship. There are two project delivery methods:

- a. Design/Bid/Build. This is the traditional project delivery approach for average/regular projects. As the name indicates, the process is composed of three steps. In this approach, the Government holds two contracts, one with the A/E design

firm and the other with the contractor/builder. In effect, the Government provides the design to the contractor to build.

- b. Design/Build. In this approach, the Government enjoys single point of responsibility. The design/build contractor designs and builds the structure for the Government and is responsible for both. This approach is usually a faster delivery method as compared to design/bid/build. However, the Government will have to spell out its requirements clearly for both the design and construction in order to avoid future problems and disputes. Depending on the complexity of the project, the Statement Of Work (SOW) could be a written statement, or a 35 percent design level of effort with outline specifications. The more complex the project, the more detail the Government should provide to the design build contractor, and the lower the risk. This approach is appropriate when time is limited and when the project is not very complex. There are other project delivery methods like Guaranteed Max Price, and Construction Management that are beyond the scope of this document.

4.3 Design A/E Support During Construction. It is necessary to plan for A/E support during construction to enable the selected contractor to obtain clarification on A/E design documents. The project manager should budget for this phase of the work. It is best to engage the A/E for this service at the 90 percent design submission since the SOW will be clearer.

4.4 Pre-Bid Meeting/Site Visit. Exchange of information among all interested parties, from the earliest identification through receipt of proposals is fundamental to improve the understanding of Government requirements and industry capabilities.

4.5 Award/Pre-Construction Meeting. After receipt of the Contract Notice to Proceed, the contractor, procurement officials, and Government project managers meet to review the design submission, and discuss the preliminary schedule and provisions for phase completion. The contractor may have suggestions on a cost effective alternative to the original design that could save project costs. These suggestions result in approved changes to the construction drawings. In like manner, other modifications are proposed during the construction phase as is covered in paragraph 4.6.

4.6 Modifications. Changes during construction can be made by the Government based on new requirements or by the contractor based on proposals for more economical and/or faster construction schedule. These modifications are submitted by the contractor as a costed change and approved by the Government.

4.7 Disputes. In case of differences between drawings and specifications, the specifications will govern. In case of discrepancies in the figures, in the drawings, or in the specifications, contractor submits written requests for information to the Contracting Officer (CO).

5. Construction Administration Services. Services include processing requests for information, modifications, shop drawings review, and progress payments review.

5.1 Submittal Review. Submittals are also referred to as shop drawings. Shop drawings reflect the way a construction trade will build a certain component of a building based on the contractor's understanding of the construction drawings. The Government will review the shop drawings and approve them within a specific period of time. This is necessary to avoid delaying the construction progress.

The Government usually relies on the design A/E to review the shop drawings and check them for consistency with the design intent. Shop drawings are critical for the construction of a facility. They need to be logged in and out of government custody in order to be approved in a timely manner. It is also important that the Operation and Maintenance (O & M) team keeps a copy of the shop drawings with the as-built drawings for future reference.

5.2 Respond to Request for Information. The ASCs process Requests for Information from the construction contractor and will either answer the questions or forward them to the A/E for resolution.

5.3 Site Visits/Hold Points. The ASCs conduct site visits to the project site at key points in the construction process. The A/E will provide support in these visits.

5.4 Progress Payments. Progress payments are made following completion of key milestones in construction. Payment requests are reviewed by the Government and the A/E, and are checked against actual progress at the construction site. Ten percent of the payment is usually withheld as a retainer.

5.5 Government Furnished Equipment. The Government provides equipment to the contractor to install in the building.

5.6 Substantial Completion/Beneficial Occupancy Date. Agreement is reached on the criteria for declaring the building read to occupy and a milestone date is set.

5.7 Punch List. Once a contractor notifies the CO that all construction activities are complete per the specifications, the appointed representative will inspect the contractor's work and note all work deficiencies on a punch list. The CO assigns a suspense date to the items in the punch list and forwards the list to the contractor. Contract closeout cannot be completed until the punch list items are completed to the Government's satisfaction.

5.8 O&M Manuals and Training. At the completion of any major construction project or building system retrofit or upgrade, the contractor shall provide written documentation of all applicable O&M procedures. At a minimum, copies will be provided for the Weather Forecast Office staff and the appropriate Regional Headquarters.

5.9 As-Built and Equipment List. It is imperative that as-built drawings and equipment lists are kept up-to-date to reflect the current state of the buildings. During construction projects numerous changes are made to facilities. These need to be incorporated into the as-built drawings. Building equipment that is replaced, made obsolete, or added to facilities also needs to be updated in a station equipment list to assist the building maintenance effort as addressed in NWSPD 30-41. A standard approach to as-built drawing upkeep is for contractors to maintain a master set of manually marked-up "red-line" record drawings and at the completion of construction transfer all red-line drawings to electronic computer-aided-design (CAD) drawings, typically using the designers' original design drawing files as the starting point. These CAD drawings are then considered the final as-builts and submitted to the owner as part of the project closeout process.

5.10 Commissioning. Commissioning of buildings is the systematic process of ensuring the complex array of equipment providing heating, cooling, ventilation, lighting, and other amenities in buildings is designed, installed, tested to perform interactively and determined capable of being operated and maintained according to the design intent and the building owner's operational needs. It is the intent of WSH to retain the services of an independent building commissioning agent before assuming beneficial occupancy of a new facility or closing out a construction contract. A building commissioning agent can be an engineer or technician who specializes in building commissioning or a specific discipline or building system. For example, an uninterruptible power supply (UPS) system could be commissioned by a building commissioning agent, an electrical engineer, or an engineering technician whose specialty is UPS systems. The commissioning agent must have no conflict of interest with the general contractor or equipment manufacturer unless a manufacturer's representative is the only individual qualified to satisfactorily test a building system or piece of equipment.

6. Move (Transition Management). The move to newly constructed buildings includes relocation of personnel, equipment and furnishings to new facilities or within existing facilities with minimum impact on operations. In general, this activity involves purchase and installation of furniture, information technology, and security requirements.

7. References. The following references contain greater detail:

- a. NWS Policy Directive 30-41, Facilities Management.
- b. NAO 217-104, Project Development, Approval, and Management (PDAM) Process.
- c. The Architect's Handbook for Professional Practice, 13th Edition, 2001.